

# Snow Survey and Water Supply Forecasting

*Wise management of existing water resources in the U.S. is essential; however, water management is complex, even under the best circumstances. Supply, demand, and cost are subject to the climate and to numerous economic and social influences, domestic and international.*



- The western United States requires a dependable supply of reasonably priced, good quality water if the economy is to prosper and if the quality of life is to remain high.
- Vast areas that receive just a few inches of annual rainfall produce bountiful crops, but only with irrigation.
- Decisions as to the type of crop to plant, the number of acres, and irrigation scheduling all depend upon reliable forecasts of the year's water supply.
- Much of the power for cities as well as for agriculture and industry is generated by hydroelectric energy.

## Snow Survey Program

The **Snow Survey Program** in Colorado is responsible for collecting snowpack and climatological data using the **SNOTEL (SNOpack TELemetry)** system. The SNOTEL data is supplemented by data collected manually at snowcourses also located in high mountain watersheds. There are 94 SNOTEL sites in Colorado.

## Data Collection

Daily precipitation and snowpack measurements from SNOTEL sites, combined with 110 manual snowcourse measurements, are used to forecast seasonal runoff at 75 stream gauges across Colorado. Forecasts are updated monthly as the winter progresses, allowing water users and resource managers to plan for changing streamflow conditions and water supplies. Water users can access the most recent snowpack data and streamflow forecasts directly from the Colorado NRCS web page.

## 2003 Summary

Drought conditions improved slightly in portions of Colorado during 2003. The best improvement occurred in the South Platte basin, where a record March blizzard dropped 3 to 5 feet of snow. The water from this single storm helped to salvage the year for most water users across northeastern Colorado. Other areas where drought conditions improved slightly were the Colorado, Yampa,

White, and North Platte basins. Although summer runoff was below average in these basins, wise water use and management helped to improve reservoir storage from the previous year's extremely low volumes. During 2003, reservoir storage improved by 752,000 acre-feet, nearly 14 percent of the total storage capacity of the state's major reservoirs.

Across most of southern Colorado, drought conditions continued throughout 2003. A second year of below average snowpack resulted in streamflows which, although better than 2002, were well below average. By year's end, reservoir storage in the San Juan, Animas, Dolores, Rio Grande, and Arkansas basins were 38 percent to 65 percent of average.

Precipitation during the summer of 2003 was generally below average across most of the state. However, the state received a little relief during August and September when near normal rainfall returned to the state.

As the winter snowpack of 2004 begins to accumulate in Colorado's mountains, most of the state continues to track below average. Only the southwestern mountains can boast of slightly above normal totals. Elsewhere, especially across the Eastern Slope, snowpack totals and precipitation are tracking well below normal again.

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